

REMARKS

Claims 1-5, 8-14, and 17-26 remain pending. Claims 1 and 10 are amended; support for the amendment may be found in paragraph [0022] and in original claims 6 and 15. Claims 6 and 15 have been cancelled.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1 and 10 stand rejected as allegedly indefinite for including the term “rapid” in the limitation “rapid discharge and charging characteristics.” Applicants respectfully submit that the rejected is mooted by Applicants’ amendment of claims 1 and 10.

Claims 1, 3-5, 8-10, 12-14, and 18-24 stand rejected as allegedly indefinite for including the term “rapid transient mode.” Applicants respectfully traverse this rejection.

“Rapid transient mode” is not indefinite read in the light of the present specification. Claims are interpreted in the context of the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321, 1327 (Fed. Cir. 2005). The specification is the best guide to the meaning of a claim term. *Id.* (citing *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). The present specification describes and defines rapid transients in paragraph [0020] on page 5. This paragraph provides examples and also provides that “[a] range that is considered ‘rapid’ transient . . . is on the order of 40%/sec (forty percent per second).”

Thus, the claim term “rapid transient mode,” when read in light of the specification, is definite. Applicants respectfully request reconsideration of the claims for this reason.

Rejection Under 35 U.S.C. § 103(a) over Kim in view of Naito

Claims 1-5, 8, 10-14, 17, and 18 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kim, U.S. Patent 5,501,083, in view of Naito, U.S. Patent 5,780,980. Applicants respectfully traverse the rejection and request reconsideration of the claims.

Kim discloses system for driving a compressor either with a commercial power source or with an auxiliary solar power source. Abstract. The control logic for using the auxiliary source is whether the primary power source has failed or compressor frequency has dropped below a minimum frequency (as in a power failure of the commercial power source). Column 4, lines 24-27, lines 38-44 The Kim patent does not disclose a controller that selects a supplemental power source when operating in a rapid transient mode which is upward. In contrast the Kim patent discloses a controller that is operable only to switch to a supplemental power source if the first source fails or fails to maintain its compressor at a minimum frequency. Further, the Kim supplemental power source is a solar cell module. Column 2, lines 19-26.

The Naito patent teaches a combination of a secondary battery (power battery) and a fuel battery (energy battery). Col. 2, lines 12-14 & 25-40. The Naito energy battery is “producing a constant output at all times” but the power “is boosted and supplied to the high-voltage power battery to charge it.” Col. 3, lines 7-11 & 57-62 (“fuel battery producing a constant output at all times”). Thus, when greater power is required, even though the power is “mainly supplied by the power battery” (col. 5, lines 53-54), the energy battery is also still supplying power. See also col. 8, lines 16-30 (during start up, power battery starts drive pump of energy battery; at same time, power battery is charged by energy battery).

Viewing these two references together, Naito may suggest charging a secondary battery with a primary power source (its energy battery), but the combined references do not teach or

suggest using only a supplemental power source when operating in a rapid transient mode, and the combined references also do not teach or suggest as a supplemental power source a capacitor or super capacitor.

Accordingly, Applicants respectfully request reconsideration and allowance of the claims.

Rejection Under 35 U.S.C. § 103(a) over Hewitt in view of Naito

Claims 1, 8, 10, 18, and 20 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hewitt, U.S. Patent 6,034,445, in view of Naito, U.S. Patent 5,780,980. Applicants respectfully traverse the rejection and request reconsideration of the claims.

It is well-settled law that the cited reference must be analogous art in order to be the basis of an obviousness rejection. To be analogous art, the reference must either be in the field of Applicants' endeavor or be reasonably pertinent to the particular problem that Applicants sought to resolve. *In re Clay*, 23 U.S.P.Q.2d (BNA) 1058, 1060 (Fed. Cir. 1992). Applicants submit that the Hewitt patent is nonanalogous art with regard to the fuel cell system claims 10-20, because the Hewitt patent is neither in the field of fuel cells, nor is it reasonably pertinent to the particular problem of accommodating a rapid transient load change on a compressor that Applicants sought to resolve; see Background of the Invention, pages 1-2.

The Hewitt patent is unrelated to fuel cell systems. The Hewitt patent describes a refrigerator system with a controller that operates to disconnect a power bus from a load when a state of one of two power sources changes and to re-connect the power bus to the load after a time delay so as to prevent power surges. Fig. 1 & column 1, lines 24-24, 36-46. The Hewitt patent is concerned with "power monitoring and specifically to monitoring power sources for

recreational vehicles.” Further, the Hewitt patent is concerned with averting power surges to appliances of recreational vehicles when the power source is changed, which is a problem unrelated to the one Applicants sought to resolve.

Therefore, the Hewitt patent is nonanalogous art and may not form the basis of an obviousness rejection.

Even if it were analogous art, the combined references would still fail to make Applicants’ invention obvious. The Hewitt patent describes a system for switching between power sources for an electrical appliance in a recreational vehicle. Col. 1, lines 14-16. The objective is to move between the sources without causing a power surge. Col. 1, lines 24-28. The Hewitt system lacks a controller that selects a secondary power source when operating in a rapid transient mode which is upward. Instead, the Hewitt system controller operates to disconnect a power bus from the load when a new power source is connected, thus preventing a power surge. Abstract; column 1, lines 38-45. In particular, the Hewitt system allows the recreational vehicle user to switch his power between vehicle battery, vehicle generator, and “shore” power [campground hook-up]. The Hewitt motor does not switch between power sources based on mode.

The Naito patent teaches a combination of a secondary battery (power battery) and a fuel battery (energy battery) for powering an electric car drive system. Abstract; col. 2, lines 12-14 & 25-40. Unlike the Hewitt arrangement, the Naito energy battery is “producing a constant output at all times” but the power “is boosted and supplied to the high-voltage power battery to charge it.” Col. 3, lines 7-11 & 57-62 (“fuel battery producing a constant output at all times”). Thus, when greater power is required, even though the power is “mainly supplied by the power battery” (col. 5, lines 53-54), the energy battery is also still supplying power. See also col. 8,

lines 16-30 (during start up, power battery starts drive pump of energy battery; at same time, power battery is charged by energy battery).

There is no reason to change the Hewitt power system, which prevents power surges when switching among alternative power sources in an RV, with an electric car power system as in Naito. The Naito system may teach re-charging an auxiliary battery from its energy battery, but the Hewitt system does not use an auxiliary battery for supplementing a main battery during higher loads.

Further, even if there were some reason to turn to the Naito patent, when taken together, the combined references still do not teach or suggest using only a supplemental power source when operating in a rapid transient mode but in normal mode using a main power source, and the combined references also do not teach or suggest as a supplemental power source a capacitor or super capacitor.

For these reasons, reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Hewitt in View of Naito and Aoyagi et al.

Claims 6 and 15, now incorporated into claims 1 and 10, have been rejected under 35 U.S.C. § 103(a) as unpatentable over Hewitt, U.S. Patent 6,034,445 in view of Naito, U.S. Patent 5,780,980 and Aoyagi et al, U.S. Patent Application Publication 2001/0051291. Applicants respectfully traverse the rejection as it applies to the amended claims 1 and 10 and request reconsideration of the claims.

Applicants reiterate their argument that the Hewitt reference is nonanalogous art, and therefore the rejection is improper.

Further, also as discussed in the section above, there is no reason to combine the Hewitt and Naito teaching; as further discussed, the combination of the Hewitt patent and the Naito patent would still fail to teach or suggest using only a supplemental power source when operating in a rapid transient mode but in normal mode using a main power source, and the combined references also do not teach or suggest as a supplemental power source a capacitor or super capacitor.

The Aoyagi reference does not teach a secondary power source for a compressor, but rather for a driving motor 13. Page 3, paragraph [0042].

For these reasons, reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Hewitt in view of Naito and Raiser

Claims 9 and 19 been rejected under 35 U.S.C. § 103(a) as unpatentable over Hewitt, U.S. Patent 6,034,445 in view of Naito, US patent 5,780,980 and Raiser, U.S. Patent 6,616,424. Applicants respectfully traverse the rejection and request reconsideration of the claims.

Applicants reiterate their argument that the Hewitt reference is nonanalogous art and that a rejection for obviousness based on the Hewitt patent is improper.

In addition, while the Raiser patent discloses a traction battery that may be charged by regenerative braking of a vehicle, it does not disclose or suggest using a regenerative braking of a compressor motor to charge a supplemental power source of that motor. The Naito patent only teaches using power of its energy battery to charge its auxiliary battery. Further, the references do not disclose or suggest a controller that regeneratively brakes the motor when operating a compressor in a rapid downward transient mode.

Further, the combined three references still do not overcome the deficiencies discussed above with respect to the first two references.

For these reasons, reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Raiser in View of Kim and Naito

Claims 1-5, 8, 10-14, 17, 21-23, and 25-26 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Raiser, U.S. Patent 6,616,424 and in view of Kim, U.S. Patent 5,501,083 and Naito, U.S. Patent 5,780,980. Applicants respectfully traverse the rejection and request reconsideration of the claims.

No reasoning is provided for the rejection of claims 1-5, 8, 10-14, 17; hence, the Office Action fails to put forward a prima facie case for obviousness of those claims. [Applicants believe this was an error on the part of the Examiner, who meant to apply the references to claims 21-23, 25, and 26, analogous to the rejection in the prior Office Action.]

The combined references fail to suggest or disclose at least the feature of claims 21-23, 25, and 26 of regeneratively braking a motor associated with said compressor to produce charging current for said supplemental power source when operating in a rapid transient mode which is a downward rapid transient mode. The Office Action relies on the disclosure of Raiser at column 1, lines 39-40, but this passage teaches only that a traction battery can be regenerated by converting kinetic energy in slowing down of a vehicle into electrical energy stored in the traction battery. This passage does not suggest using a motor associated with the compressor,

which is in turn powered by Applicants' supplemental power source during an upward transient mode, to produce charging current for the same supplemental power source.

In particular, the Raiser patent *teaches away* from using a traction battery. See col. 1, line 66 to column 2, line 2 ("The object of the present invention is to make sufficient air available for the fuel cell system to be started up and run up to power without the use of a traction battery") Teaching away from a combination is the antithesis of obviousness. *In re Gurley*, 27 F.3d 551, 553, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994).

For these reasons, reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Raiser in View of Kim, Naito, and Aoyagi et al.

Claim 24 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Raiser, U.S. Patent 6,616,424 and in view of Kim, U.S. Patent 5,501,083, Naito, U.S. Patent 5,780,980, and further in view of Aoyagi et al, U.S. Patent Application Publication No. 2001/0051291. Applicants respectfully traverse the rejection and request reconsideration of the claims.

The addition of the Aoyagi reference fails to overcome the deficiency of the other references with regard to underlying independent claim 21. Therefore, claim 24 is patentable over these references for the reason discussed above.

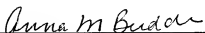
Allowance of claim 24 is thus respectfully requested.

Conclusion

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner

reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,



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